have had the greatest attraction for him. Finally, when he settled down to the continuous study of astronomy and procured a powerful reflector suitable for his purpose, he introduced many small conveniences to assist the work, which no doubt contributed in a large measure to his ultimate success; for at the time he began his work astronomers had not recognised with the keenness they do now the necessity of controlled driving clocks to equatorials, and other happy suggestions for lightening the labour or the irksomeness of prolonged exposure in photographic work. This was the direction in which Dr. Roberts chose to work, and in which he earned a well merited reputation. It may be said of his early photographs that they were a revelation, and they are still worthy of profound study, though others working with more powerful instruments, and guided, it may be, by his early experience, have equalled and possibly surpassed them in the amount of detail shown. Two handsome volumes containing photographs of nebulæ and star clusters, which Dr. Roberts published at his own expense and widely distributed, speak to his industry and liberality, and his mechanical genius found another outlet by constructing a machine for the ready copying or transference of the positions of the stars photographed, to copper plates, from which they could be readily printed. How far this device has been used is uncertain; probably mechanical photographic processes have supplanted it.

Another feature in Dr. Roberts's methods which was eminently practical and worthy of imitation was the care he displayed in selecting a site for his observatory. His desire was to secure a good observing atmosphere and the greatest freedom from clouds, and many and minute were his inquiries, both at home and abroad, before he settled on Crowborough Hill, where his observatory was finally situated. Even shortly before his death he visited Las Palmas for the purpose of making some observations which required good observing conditions, and it will be to the regret of many friends that his activity and his energy are lost to us while he was still eager and capable of pursuing his favourite study.

The deceased astronomer, who had been elected a fellow of the Royal Society and many other learned bodies, was in his seventy-fifth year. He was twice married, on the second occasion to Miss Dorothea Klumpke, whose name and reputation are known throughout Europe, and to whom the deepest sympathy will be tendered.

NOTES.

WE regret to have to record the death, at the age of eighty-two, of Sir John Simon, K.C.B., F.R.S., which took place on Saturday last.

THE death is announced of Prof. Trasbot, formerly director of the Alfort School, at the age of seventy-two years. He had been a member of the Paris Academy of Medicine since 1886, and was the author of many works relating to pathology, epidemic diseases, and sanitary administration.

THE death is announced also of Dr. J. Bell Hatcher, curator of vertebrate zoology at the Carnegie Museum, Pittsburg, at the age of forty-six years.

THE Berlin correspondent of the *Lancet* states that Prof. Koch will vacate his position as chief of the Royal Institution for Infectious Diseases on October 1, in order that he may have more time for scientific research. He will, however, continue to be connected with the institution, and, by special order of the Government, will have on the premises a laboratory furnished at the public expense, and the clinical material of the institution will be placed at his disposal. We learn also from the same source that Prof. Koch is to succeed Prof. Virchow in the membership of the Royal Academy, Berlin, and that his successor as chief of the Institution for Infectious Diseases will be Prof. Gaffky, now of the University of Giessen. Prof. Gaffky's acceptance of Prof. Koch's chair in the University of Berlin was announced in our issue of July 14.

IT is announced in *Science* that Mr. H. C. Russell, Government Astronomer of New South Wales, is to retire at the end of the present year, after forty-six years' service.

THE seventy-second annual meeting of the British Medical Association was opened at Oxford on Tuesday last, when the president, Dr. Collier, delivered his address. In the evening a reception was held in the Sheldonian Theatre, and the Middlemore prize for the best original work on ophthalmology brought out during the past three years was awarded to Mr. J. Herbert Parsons.

THE Lord Provost of Glasgow opened on Thursday last the health exhibition which has been organised in connection with the twenty-ninth autumn congress of the Sanitary Institute now in session at Glasgow. The exhibition is divided into colonial, municipal, and educational sections, and among the exhibits are a model hospital and a model one-house dwelling.

THE congress of the Royal Institute of Public Health at Folkestone was opened on Thursday last and closed on Tuesday.

AN intercolonial agricultural conference was opened in Pretoria on Monday last, and the delegates will discuss, among other subjects, the formation of a Central South African Agricultural Union, African coast fever, the native question, irrigation, and fruit and cotton growing.

THE sixth centenary of the birth of Petrarch opened at Arezzo on July 20. The Count of Turin represented the King of Italy, and Signor Orlendo, Minister for Public Instruction, represented the Italian Government. An artistic tablet was unveiled at the house in the Via dell' Orto in which Petrarch was born, and later there was a memorial ceremony in the Politeama Aretino. The festivities lasted until July 25.

THE new hall of the Royal Horticultural Society in Vincent Square, Westminster, was opened by His Majesty the King on Friday last. The building, which includes a library, offices, council chambers, and a lecture room, in addition to the large hall in which the society will hold its fortnightly exhibitions, has been built to celebrate the centenary of the society. In the address which Sir Trevor Lawrence read to the King and Queen the work of the Royal Horticultural Society was reviewed, and in regard to the efforts of the collectors sent out by the society in the nineteenth century, it was said, in the words of Mr. Andrew Murray, that "the results have affected the appearance of all England. Nowhere can a day's ride now be taken where the landscape is not beautified by some of the introductions of the Royal Horticultural Society." Perhaps nothing indicates more clearly the way in which the society has promoted the science and art of horticulture than the fact that whereas there were one thousand three hundred fellows in 1887, there are now eight thousand, one hundred and fifty. Baron Sir Henry Schroeder presented the report of the building and appeal committees, in which it was stated that twenty-six thousand pounds had been subscribed towards the cost of the hall, which will amount in the end to forty thousand pounds. His Majesty received congratulatory addresses on behalf of the society. Dr. Maxwell Masters presented those from the Société Royale d'Agriculture et de Botanique de Gande and from the Horticultural Society of Prussia; Mr. Edwin Mawley that from the National Rose Society. His Majesty then declared the hall open. It is, we understand, the intention of the society to provide scientific instruction as well as practical training in connection with the gardens at Wisley.

ARRANGEMENTS have been made which will make it unnecessary to close the Museum of Practical Geology, Jermyn Street, for a month in autumn as heretofore; the museum will therefore remain open to students and visitors daily.

THE International Astronomical Congress will begin its meetings at Lund, Sweden, on September 5.

THE tenth International Congress of Navigation is to be held at Milan from September 24 to 30, 1905. Applications for the local organising committee's letter of invitation to the congress, and for the programme of the arrangements made, should be addressed to the general secretary of the congress, Signor E. Sanjust di Teulada, 3 Via Sala, Milan, or to Prof. L. F. Vernon Harcourt, 6 Queen Anne's Gate, Westminster.

AN interesting exhibition of about 700 incandescent electric lamps, including the first experimental lamps made by Mr. Edison, is about to take place at the St. Louis Exposition. The collection is stated to be complete and unique, and to include a specimen of every kind of filament lamp ever made in Europe or America.

ACCORDING to the Indian correspondent of the *Lancet*, Mr. Tata left a will by which his heirs and trustees are required to carry out his intentions with reference to the research institute in which he took so great an interest.

THE Paris Academy of Sciences has awarded the Lecomte prize of fifty thousand francs for the most interesting work in physical science to Prof. Blondlot for his researches on the *n*-rays.

A GOLD medal has been awarded to Commander Peary by the Société de Géographie, Paris, in recognition of his work in the North Polar regions.

THE Elliott-Cresson medal is to be conferred on Dr. Hans Goldschmidt, of Essen (Ruhr), Germany, by the Franklin Institute, Philadelphia.

AFTER an absence of a year and eight months the Scottish National Antarctic Expedition has returned to Scotland, leaving, however, Mr. R. C. Mossman, the meteorologist, in the South Orkney Islands to continue his research work. At the meeting held to welcome home the expedition, Sir John Murray, as president of the Royal Scottish Geographical Society, read the following message of congratulation which had been telegraphed to Mr. Bruce, the leader, by Lord Knollys:—"I am commanded by the King to congratulate you and the officers and crew of the *Scotia* on your and their safe return and on the completion of your addition to scientific knowledge and discovery in the south-eastern part of Weddell Sea.—KNOLLYS." A number of other congratulatory messages were also read, the gold medal of the Royal Scottish Geographical Society was conferred on Mr. Bruce, and a gold watch-seal presented to Captain Robertson.

ACCORDING to the *Electrical Review*, the United States Naval Wireless Telegraph Commission will shortly recommend the establishment of wireless telegraph stations at various strategical points on the sea coast. These stations will transmit all Government messages, including weather bureau information, and it is probable that commercial telegrams will also be accepted. The Treasury proposes to provide revenue cutters with wireless telegraph apparatus. It is also stated that a contract has been signed between the United States Government and the De Forrest Wireless Telegraph Co., by the terms of which it will ultimately be possible to send wireless messages between New York and Japan. The Government, which will defray the cost of the various equipments, will have the use of the various installations for naval and other purposes, and the company will be bound to maintain them in good working order with the right to transmit commercial messages.

WE have received from the secretary a programme of the proceedings of the sixth International Zoological Congress to be held at Berne from August 14 to 19. Up to the present 250 persons have joined the congress, and a number of countries and scientific societies will be represented, while no less than seventy communications have been announced to be read at the various sections. These sections are six in number, and in them the study of geographical distribution is assigned an important position. The proceedings will commence by a meeting in the great market-hall on the evening of Sunday, August 14.

MR. J. G. MILLAIS is to be congratulated on his good fortune in having been able to add an entirely new mammal to the British fauna in the form of a vole (*Microtus orcadensis*), of which the description appears in the July number of the *Zoologist*. In a postscript by Mr. O. Thomas it is stated that the new species is totally distinct from all other known forms, differing from the common short-tailed field-mouse (*M. agrestis*) not only in external characters, but in the number of folds in the second molar, and being apparently equally distinct from the Continental field-mouse (*M. arvalis*) and the eastern *M. ratticeps* and their immediate relatives. It forms, in fact, a small zoological and geographical puzzle. In the same number Mr. R. J. Howard describes an instance of the long-eared owl nesting on the ground.

A NOTE in the *Scientific American* directs attention to a communication which was recently addressed to the French National Society of Agriculture by M. Bignon on the efficacy of artificial clouds in preventing late frosts. M. Bignon has for many years successfully protected his vineyard by the method he describes. The vineyard is divided into five parts, separated from east to west by walks of from 12 to 15 feet wide, and is encircled by an avenue of equal width. These walks facilitate the placing of the fires, which are built in small basins sunk into the earth some 50 feet apart, and filled with 15 or 20 pounds of resinous matter and some pieces of pine and other vegetable débris. During 1903 (in one week of which the frosts were very heavy) the method saved, it is reported, 25 per cent. of the harvest, or some 125 to 150 barrels of wine. It is stated that any substance can be burnt which gives a thick and abundant smoke, such as green herbs, moss, damp straw, tufts of grass, &c., but best results have been obtained by the heavy oils which are the residues of gas.

M. ÉLISÉE RECLUS is preparing for the Belgian Society of Astronomy, Meteorology and Physical Geography a monograph descriptive of the volcanoes of the world and maps showing their distribution. One map, in colours, will be on a scale of 1 : 40,000,000, and this will be supplemented by others on a scale of 1 : 2,000,000. On the proposed maps all the areas the surface of which is formed of eruptive rocks will be shown, and the location of the various forms of volcanic phenomena will be marked. Volcanoes that are believed to have been extinct since the historic period, those that have been active since the beginning of human history, and those which have more recently been centres of eruption will all have their distinctive signs.

In the opinion of the town sanitary committee of St. Petersburg the town medical officers should be sent abroad periodically in order to become acquainted with the progress of the sanitary and medical departments of the large towns of western Europe, and so be able properly to organise medical and sanitary supervision.

Dr. R. Fulton, writing to us from Dunedin, New Zealand, suggests that polyandry among birds is connected with the parasitic habit of depositing the eggs in the nests of other species. After referring to the well known fact that the common cuckoo is very markedly polyandrous, Dr. Fulton proceeds to point out that the same feature exists, or is in course of being developed, among many other wholly or partially parasitic species, such as the American cow-birds and cuckoos, parasitism gradually creeping in *pari passu* with the development of parasitism. If our correspondent's theory is well founded, it would certainly seem worth the attention of ornithologists. The writer further states that, contrary to the usual opinion, there are numbers of instances known where cuckoos (species not stated) have supervised the forced adoption of their offspring by other species, have assisted in their feeding, and have finally reclaimed and taken them away from their foster-parents. In support of this statement he cites Campbell's "Australian Birds."

We have been favoured with a copy of a circular letter from Hofrath Dr. Franz Steindachner, director of the Royal Museum of Natural History, Vienna, in which attention is directed, in the first place, to the importance of Parà, at the mouth of the Amazons, as a zoological station, and, secondly, to the great value of the biological work which has been carried on there during the last few years by Dr. Emil Goeldi and his able staff of assistants at the "Museum Goeldi." Dr. Goeldi's "Album de Aves Amazonicas," which has been specially noticed in our columns, and Dr. Huber's "Arboretum" are, in Dr. Steindachner's opinion, works of the highest scientific value.

In the *Quarterly Review* for July, Prof. Ray Lankester in an article on sleeping sickness reviews our knowledge of the trypanosomata. He directs attention to the recent researches of Schaudinn, which seem to prove that two blood-parasites, the first a malaria-like one, the Halteridium of birds, the other a spirillum-like form or Spirochæte, are simply phases of trypanosomes. Similarly the parasitic bodies known as the Leishmann-Donovan bodies (Nature, vol. lxix. p. 495), are stated by Rogers to give rise to trypanosome forms. Incidentally Prof. Lankester takes the opportunity to indict the British Government for its supineness with regard to scientific research.

Parts i. and ii. of vol. lxxvii. of the *Zeitschrift für wissenschaftliche Zoologie* contain two long papers devoted to annelid morphology, the one, by Mr. A. Luther, on the "Eumesostomine" rhabdocœlous turbellarians, and the other, by Mr. E. Mattiesen, on the embryology of the fresh-water planarian, or dendrocœlous, turbellarians. Both are of far too technical a nature for detailed notice in our columns, but it may be pointed out that, according to modern principles of nomenclature, the title "Eumestominæ" for the subfamily typified by the genus Mesostoma is a misnomer, the proper term being "Mesostominæ."

The *Entomologist* for July opens with a coloured plate illustrative of three new species of butterflies described in the first article by Mr. W. Dannatt. Various writers record the capture during the present season in different parts of the country of no less than eight examples of the rare striped hawk-moth (*Deilephila livornica*).

The July number of *Nature Notes* contains an account of the annual meeting and conversazione of the Selborne Society held in May last in Burlington Gardens, when a large number of prizes were awarded for work connected with field natural history. The society continues to display its wonted activity in endeavouring to protect such natural and artificial features of the country as appear in danger.

No. 12 of the *Publications de Circonstance* of the International Council for the Exploration of the Sea contains a useful catalogue of the fishes of northern Europe with their names in the different languages of this region. In part xiii*a*. of the same is commenced a detailed account of the present condition of the Swedish and Danish sea-fisheries, illustrated with maps and diagrams.

The *Proceedings* of the Philadelphia Academy for April contain three papers dealing with descriptive zoology, namely, one by Mr. A. Gulick on the fossil land-shells of Bermuda, a second by Mr. J. A. G. Rehn on the bats of the genus Macrotus, and a third by Mr. H. C. Oberholser on the birds of the genus Dendrocincla. More general interest attaches to a communication by Mr. A. E. Brown on post-Glacial Nearctic centres of dispersal for reptiles, of which only the first page is included in the section before us.

The third part of Mr. G. M. Allen's list of the fauna of New England (in course of publication by the Boston Natural History Society) is devoted to the Mammalia, of which eighty-eight species and subspecies are recognised. Old-fashioned naturalists will be somewhat surprised to see well known species figuring under such unfamiliar titles as *Paralces americanus* and *Odocoileus virginianus borealis*.

The *Proceedings* of the Royal Physical Society of Edinburgh for June contain an abstract of the address of the retiring president, Prof. J. C. Ewart, which was devoted to the "making of the elephant," based on recent discoveries in Egypt. In addition to Mr. W. E. Clarke's account of the Færöe mouse, already noticed in our columns, the contents of this number include a paper by Drs. Hepburn and Waterston on the anatomy of the porpoise, and one on colour variation in the viper by Dr. G. Leighton.

In *Science* (July 1) Prof. Long, in an interesting paper, gives an able summary of the relation of modern chemistry to modern medicine. He deals briefly with the action of enzymes, with oxidation in the tissues, with toxins and Ehrlich's side-chain theory, and with the application of physical and mathematical chemistry in the exact study of problems which at one time were assumed to be essentially biological. He finally discusses what should be the proper course of chemistry for the medical student, and concludes that the young man commencing the study of medicine must bring with him a knowledge both of inorganic and organic chemistry sufficiently broad to enable him to grasp the new problems which medicine now presents.

The papers in the July number of the *Journal of Anatomy and Physiology* (xviii., part iv.) are almost all purely anatomical in character. Prof. Arthur Robinson's third Hunterian lecture on the early stages in the development of mammalian ova and an obituary notice of the late Prof. His are the only exceptions.

To commemorate the centenary of the birth of M. J. Schleiden, botanist and naturalist, a short account of his life and works has been prepared by Dr. Mobius, and is published by Engelmann, of Leipzig. Endowed with a controversial temperament and possessed of a ready wit, Schleiden's life was characterised by strenuous activity, but he practically sacrificed his scientific career at an early age in order to plunge into political matters. He is best known for his "Grundzuge der Botanik," which may be described as the first *scientific* text-book of botany. A collection of lectures entitled "Die Pflanze und ihr Leben" was even more successful, as it passed through six German editions, and was translated into English, French, and Dutch.

In addition to the general botanical surveys of a county or a division of a county, there is considerable scope for the investigation of ecological problems on a less extensive scale. In the account of the botanical survey of a pasture which appears in the *Naturalist* (April), Mr. R. C. Gaut describes the characteristic plants which were found, and discusses the causes which enabled the crested dogtail grass to dominate a wet field, while hard by it was replaced by tussock, Yorkshire fog, or foxtail grasses.

In the *West Indian Bulletin* (vol. v. part i.) Mr. Buttenshaw takes up the subject of West Indian starches, their origin and characters. The majority of them are obtained from roots and tubers, and the order Scitamineæ provides a number of plants which store up starch. The writer mentions that the bread-fruit yields a starch suitable for laundry work, and that farinaceous foods can be prepared from the yam-bean, *Pachyrhizus tuberosus,* and "cho-cho" root, *Sechium edule.* In the same number will be found a report on the fruit industry of Jamaica by Mr. W. E. Smith, and a list of the birds of St. Vincent prepared by Mr. A. H. Clarke.

A third report of the special chloroform committee of the British Medical Association has been published (*Brit. Med. Journ.*, July 23, p. 161). Prof. Sherrington and Miss Sowton have continued the perfusion experiments on the isolated mammalian heart (see Nature, vol. lxviii. p. 351), and find that equal quantities of chloroform dissolved in physiological saline solution, in serum, and in blood respectively exert on the heart very different degrees of depression, chloroform in the salt solution depressing the heart much more powerfully than when administered in blood in the same percentage strength. Mr. Vernon Harcourt gives the results of further tests with his inhaler, and Messrs. Byles and Harcourt and Sir Victor Horsley discuss the estimation of chloroform dissolved in blood.

We have received a copy of the twenty-sixth annual report of the Deutsche Seewarte, for the year 1903. This report marks an important epoch in the history of the Seewarte, owing to the retirement of Geheimrath Dr. G. v. Neumayer, with the title of "Excellenz," after twenty-seven years of eminent service as director of the institution. Under his able guidance the Seewarte has become one of the best organised of the European services, especially in the domain of maritime meteorology and international weather telegraphy. Dr. Neumayer's successor is Rear-Admiral A. Herz, who has the aid of a very efficient staff of assistants. We observe from the report that, like the work of our own Meteorological Office, the useful operations of the Seewarte are constantly increasing. In the department of ocean meteorology, 1169 log-books of various classes were received in the year 1903 against 939 in the previous year, which gave the very substantial increase of 72,563 sets of observations in the year 1903. In the department of weather telegraphy and storm signals great activity has been shown in perfecting the system of 7h. a.m. reports, and in extending it over the whole of Europe. Experiments have also been made with the view of improving the system of signals for giving warning of storms at night, by means of white and red lanterns. Space prevents us from specially mentioning the work of several other departments, but we have frequently had occasion to refer to the valuable publications issued by them from time to time.

In view of the arrangements in progress for continuous temperature observations at the observatory on Monte Rosa, Dr. Emilio Oddone contributes to the *Atti dei Lincei*, xiii. (1), 8, a short note on the values of the mean temperature for the different months of the year, estimated for the Monte Rosa station from other observations. Three different methods have been adopted. The first is based on observations at lower levels combined with corrections based on the temperature gradient; the second is based on temperature observations made in balloon ascents, and the third on 800 temperature observations made in various Alpine ascents, and reduced to the altitude and latitude of the Monte Rosa station. In this way materials have been collected from which it will be possible to infer, in the light of future observations, to what extent the mean temperature of a mountain station can be predicted from observations made elsewhere.

We have received the "Year-book" of the Austrian Central Institute for Meteorology and Terrestrial Magnetism for 1902. A more valuable series of observations and carefully prepared results could not be imagined; the volume contains daily observations or results for 409 stations, including Jerusalem and two other foreign places. The rainfall observations of 2560 stations are separately dealt with by the hydrographic department, and the Philosophical Society of Brünn has also a separate system of some 200 temperature stations, while the observations for Hungary are published by the Hungarian Meteorological Office. The distribution, as regards altitude above sea-level, of the 409 stations contained in the "Year-book" in question is worthy of note:—from 0–500 metres, 252 stations; 500–1000 metres, 111 stations; 1000–1500 metres, 33 stations; 1500–2000 metres, and 2000–2500 metres, 6 stations each; 1 station (Sonnblick Observatory), 3100 metres. We have here all the necessary materials for determining the value of observations on mountain stations for the purpose of weather forecasting, and for discussing other interesting questions as to the effect of altitude on the behaviour of various meteorological elements. A report of an international expert conference as to the usefulness (or otherwise) of the practice of gun firing for the dispersion of hail-clouds ("weather-shooting") is published separately as an appendix to this volume. The director of the Austrian Meteorological Service is Dr. J. M. Pernter.

Although many attempts have been made to prepare mixed anhydrides of organic acids and nitrous or nitric acid, they have always hitherto been fruitless. In the June number of the *Gazzetta*, however, L. Francesconi and U. Cialdea describe the method by which they have succeeded in preparing the mixed anhydrides of nitrous acid and acetic, propionic, and benzoic acids. These anhydrides, which have the general formula R.CO.O.NO, are obtained by the interaction, at the temperature of a mixture of ice and salt, of nitrosyl chloride with the silver salts of the acids named. They form yellowish oils which may be distilled in a current of carbon dioxide at temperatures not exceeding 70°. On being heated, the vaporised anhydrides explode with violence, so that especial methods had to be devised for their analysis. By water the anhydrides are decomposed into nitrous anhydride and the corresponding organic acid.

IN the same number of the *Gazzetta* L. Francesconi and N. Sciacca establish the remarkable result that, at the temperature of liquid air, nitric oxide cannot be made to combine with a larger proportion of oxygen than that corresponding with the production of nitrous anhydride. Only at temperatures above $-110°$ does nitrous anhydride combine with oxygen to form the peroxide N_2O_4. At $-150°$ nitric oxide readily reduces the peroxide to nitrous anhydride, whilst the latter is stable, under the ordinary atmospheric pressure, at all temperatures below $-21°$. The pure anhydride is, at $-185°$, a dark blue solid which on being melted forms a dark blue liquid.

To part iii. of vol. i. of *Records* of the Albany Museum Dr. R. Broom contributes four short papers on reptilian and amphibian remains from the Karoo series. Special interest attaches to an anomodont hind foot on account of the mammalian affinities exhibited by the tarsus. A new genus of labyrinthodont (Cyclotosaurus) and one of an endothiodont anomodont (Chelyoposaurus) are described.

THE *Annual Report and Transactions* of the Manchester Microscopical Society for 1903 has just been issued, and is of an encouraging nature. The society has now 181 members as compared with 170 at the end of 1902, and the financial statement is of a satisfactory character. The address which was delivered in December by Prof. S. J. Hickson, F.R.S., as president, on "Variations" is printed in the volume.

IN the *Physikalische Zeitschrift* (No. 14) W. Seitz describes a method of measuring the intensity of the β rays given off by radio-active bodies, in which the converse principle to that adopted by Strutt and by Paschen is made use of. Instead of measuring the positive charge which accumulates on a radio-active body in a vacuum, the magnitude of the negative charge produced by the impact of the rays themselves on an insulated metallic disc suspended in an exhausted glass vessel is determined. The apparatus used lends itself particularly well to the study of the absorption of the rays caused by the interposition of thin sheets of various materials. It is shown that the law found by Lenard to govern the absorption of the kathode rays roughly applies also to the β radiations, namely, that for unit surface the same absorption is caused by equal "masses" of the different materials, these masses being measured by the product of thickness and density. But the law is only approximately true, and, in the case of the elements, there is an increase in the absorption, for equal masses per unit of area, with an increase in the atomic weight.

AMONG papers in the *Verhandlungen der k.k. geologischen Reichsanstalt* for 1904, we note a study by Father R. Handmann of the Congeria-fauna of Leobersdorf, near Vienna (p. 48). The author sustains the view of Dr. Brusina, that this fauna is a northern offshoot from a Croatian centre of development. Dr. O. Ampferer (p. 73) describes in detail the relics of great landslips from the mass of the Tschirgant above the valley of the Inn. These probably occurred in late Glacial times. Travellers by road in this district will know how to this day the hillsides are in a state of unrest and instability. Herr C. von John (p. 104) furnishes a paper of interest to chemists and engineers on the different deductions that may be arrived at as to the heating power of coals, according to the condition and treatment of the sulphur present. This element may exist in organic combination, or in iron pyrites, or in a sulphate, and the mode of calculation adopted may seriously affect the statement of the oxygen present.

IN the *Journal* of the Royal Microscopical Society for June, Dr. A. E. Wright discusses the following four methods of measuring the magnification of a microscope and its elements:—(1) use of a focusing lens placed above the ocular for bringing the emergent rays to a focus in the plane of a suitable measuring scale; (2) separate measurements of the magnifying powers of objective and ocular; (3) measurements depending on Helmholtz's formula; and (4) methods involving the production of a fiduciary phenomenon by means of a diffraction grating.

THE Royal Engineers' *Journal* for June contains the description of a new form of slide rule invented by Major F. J. Anderson. The advantages claimed for it appear, so far as can be judged from the description, to consist in the fact that it can be used with a duodecimal instead of a decimal scale of notation, and that the numbering of the lines is made absolute, there being separate and parallel scales on the upper limb for numbers from 1 to $\sqrt{10}$, $\sqrt{10}$ to 10, and so forth, and on the lower limb for the square roots of these numbers. Those interested in slide rules will doubtless compare the present instrument with the circular slide rule and the form proposed some time ago, in which the graduations formed a spiral line on the surface of a cylindrical ruler.

IN the *Parents' Review* for July, Prof. J. Arthur Thomson gives a suggestive paper on "Nature and Nurture," in which he discusses some of the problems of inheritance and shows that much may be done to mould the young in spite of the factors of inheritance. Dr. Leslie Mackenzie discusses normal growth in the school ages, dealing with such subjects as work, play, sleep, and diet; Dr. Clouston gives some useful hints on nervous diseases and symptoms of the school age, and Mr. George Smith discusses developmental exercise at school. If parents and others in charge of the young would study such articles as these and put into practice what they teach, the race would grow up healthier and happier.

THE last three numbers of the *Bulletin* of the St. Petersburg Society of Naturalists (2, 3, 4, for 1904) contain a number of interesting communications:—"On the Respiration and the Biology of Enzymes," by I. Warschawsky, S. Kostytschew, N. Maximoff, and M. Lestsch; "On the Tertiary Formations of Crimea and Western Caucasus," by V. Bogatscheff and J. Mikhailovsky, both giving extensive lists of the fossils they have found; "On the Geology of Samara," by W. Lehmann; "On the Peat-bogs of Novgorod," by W. Sukatcheff; "On the Lichens in the Sayans," by A. Elenkin; "On the Volcanic Rocks of the Trialet Mountains in the Caucasus," by B. Kolenko; "On the Fossils Found in the Bolshezemelsk Tundra (North-eastern Russia)," by W. Chitrowo; "On the Survival of the Heart in Mammals," by Th. Thur; "On the Morphology of the Phagocyte Organs of Insects," by O. Dawydoff; "On the Influence of Quinine on the Respiration of Germinating Seeds," by J. Smirnoff; "On the Morphology of the Rust-fungi," by W. Tranzschel; and several smaller notes. All of them are summed up in French or in German.